No 55

No 9

An Inaugural Essay, on Hæmoptysis.

Submitted to the Examination, of the Trustees and Medical Professors, of the University of Pennsylvania; for the Degree of Doctor of Medicine, by William Davis of Pennsylvania.

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Haemoptysis

When we reflect on the size of the blood vessels entering the lungs, and on their minute ramifications being delicately dispersed on the surface of the aircells and involved in a cellular substance that will admit of but little resistance, the frequency of hæmorrhage from that viscus can not be wondered at.

When after some affection of the chest, blood is brought up by coughing, there can be but little doubt that it proceeds from the lungs, there are however cases to be mentioned hereafter, in which it will be necessary to take other circumstances into view, to enable us to determine whether it proceeds from the fauces,

the adjoining cavity of the nose, the stomach, or the lungs.

Hæmoptysis most usually arises between the ages of sixteen and twenty five years, and may be occasioned by a variety of causes such as any violent exertion either in running, jumping, wrestling, singing, speaking loud, or blowing wind instruments, as likewise by wounds, plethora, weak vessels, hectic fever, cough, irregular living, excessive drinking, or the suppression of some accustomed discharge; such as the menstrual or hæmorr=
=hoidal. It may likewise be occasioned by breathing air which is too much rarified to be able properly to expand the lungs.

Persons labouring under defective confor=
=mation either in the vessels of the lungs, or in the capacity of the chest, being distinguished by a narrow thorax and prominent shoulders, or who are of a delicate make and sanguine temperament, likewise those possessed of great sensibility and irritability and who have had previous affections of the same

disease, seem much predisposed to this hæmorhage, but in these the complaint is often brought on by the concurrence of the various occasional and exciting causes before mentioned. A spitting of blood is not however always to be considered as a primary disease. It is often only a symptom and in some disorders, such as pleurisies, peripneumonies, and many fevers, often arises and is the presage of a favourable termination.

Symptoms.

In this disease, as in many others, we find two states termed by Dr. Cullen the active, and passive. Its first stage is usually ushered in by coldness of the extremities, pain in the back and loins, flatulency, costiveness and lassitude; a redness of the face particularly the cheeks accompanied by a pain and sometimes a burning sensation in the breast, difficulty of breathing, and frequently, a saltish taste is perceived in the mouth. After these symptoms

have continued for a longer, or a shorter time a tickling sensation is experienced in the trachea, attended with a tussicula or a slight hacking cough followed by a dis= =charge of blood of a florid and frothy appearance producing a noise similar to air passing through a fluid. The blood brought up in this manner is generally at first in small, but in some cases from the very commencement it appears in large quantities, and not preceded by the pre= =monitory symptoms appearing suddenly and returning at stated periods. The pulse in this state of the disease is frequently quick, and tense; sometimes full and round without tension.

If the disease has continued for any length of time, or the discharge profuse the symptoms of the second or passive state, make their appearance, the pulse becomes small and frequent, the difficulty of breathing continues to an alarming degree, the face pale, the extremities cold, syncope, tremors, convulsions

and lastly death.

Diagnosis.

When blood is thrown out from the mouth, it is not always easy to determine from what internal part it proceeds. It however may be done by attending to the following considerations. When blood proceeds from the fauces or posterior nares it is for the most part, brought up by hawking, and by inspection we have it often in our power, to detect the bleeding vessel.

Haemorrhagies from the fauces are a more rare occurrence than those from the lungs, and are seldom attended with fever. When they proceed from the stomach, they may be known by the absence of the symptoms mentioned above, and being attended with pain, anxiety and a sense of weight, referable to that viscus; from the dark and grumous appearence of the discharge, from its being mixed with alimentary matter, and, by its

being unattended by cough; and usually in larger quantities.

Prognosis.

Favourable, when it arises from external violence, more so when it occurs in consequence of some suppressed evacuations as the menses in women and the hæmorrhoids in men, and when the blood is small in quantity, and of a bright red colour and not followed by cough, dyspnœa, pain or other affections of the lungs. It is thought salutary, when it occurs as a symptom of a prevailing epidemic, as plague, yellow fever small pox &c. thereby proving a solution of the disease.

Unfavourable, when it arises from hereditary predisposition, or malconformation of the pulmonary system.

though it must in general be large; and in some cases its effects approximating to syncope, which however will not be often necessary, since we are plentifully furnish-ed with agents sufficiently active to suppress it, without carrying venisection to so great an extent: nevertheless there should be taken away at once by a large orifice as much as will subdue arterial action.

Nitre, from its refrigerating and sedative effects, is eminently suited to the cure of hæmorrhagies; it should be prescribed in small doses and frequently repeated. This medicine is found especially useful in hæmoptysis; and it is of more service than muriate of Soda (or common salt) from the latter, in many instances being too stimulating and always leaving the patient liable to a recurrence of the complaint. But the latter is sometimes used with advantage, for I agree with Dr. Rush that a large dose of it will very effectually stop a copious bleeding from the

lungs; and it is always at hand when other remedies can-not be procured.

Saccharum Saturni. This medicine has long been used in haemorrhagies; but the cautions of Sir George Baker, and others, concerning its deleterious quality, brought it into disuse. To the late Dr. Baxton the credit is due, of dispipating those false alarms, and reviving the use of this remedy, which is of almost unequalled value in haemorrhagies, both of the active and passive kind.

Dr. Reynolds of London used it with great success in the case of a young gentleman in haemoptysis in the following form. ℞ Sacch: Sat: grs. i How often?

Conserv: Ros: grs. ii

Tinct: Thebe gut. iii

The dose was increased in two days to double the quantity. Before taking the above prescription, he had been bled several times, nitre and other neutral salts had been administered freely, and an abstemious

diet observed. His pulse 108 in a minute; in four days his pulse became soft, less full and beat 70 in a minute; his haemorrhage ceased on the fourth day after taking the pills.

Professor Chapman, whose practice with this article has been very extensive, and to whom we are indebted for many useful and important observations on its properties, recommends it as a valuable and powerful remedy in uterine and other haemorrhagies. The largest quantity that he gave was half a drachm in the twenty four hours. He observes, that it will, however be found, in general, that two or three grains given three or four times a day will be amply sufficient; for it is rarely necessary to transcend nine or ten in the twenty four hours. It should never be continued longer than three or four days at a time, as by a longer continuance of its use, bad consequences might ensue. He always combines it with a small quantity of opium, and supposes that it may be given in larger doses with, than without this narcotic.

In further confirmation of the utility of this medicine in the cure of haemoptysis, I beg leave to relate the particulars of the following case, which came under my observation last Spring. on the 15th of May I was called on to visit Thomas Gray aged twenty five years, he followed the trade of a shoemaker, and had been subject to for=
=midable attacks of this disease. He had on former occasions been successfully treated by Dr. Thomas P. Davis of Chester County Pa. but that physician having himself become indisposed, referred this patient to me. Several days having elapsed before I saw him, in consequence of the patients anxious desire to be attended by his former physician. Upon seeing him, I was almost deterred making any effort to relieve him, so desperate did the case appear. I was informed by his friends that he ejected, by coughing and gently forcing the air from his lungs, at least a pint and a half of blood daily

since the 12th he had not slept for three days and nights, nor was he able to respire in a horizontal posture; he had no appetite, his strength was rapidly declining, and it was expected that he could not survive many hours.

I need not be precise in relating the treatment. He took five grains of Sacch: Sat: with the fourth of a grain of opium every six hours. When he had used half a drachm of the medicine he was enabled to lie a few hours with considerable ease, and the hæmorrhage was so far restrained that the expectorated mucus was barely streak-ed with blood. Pectoral mixtures were now employed with a view to remove his cough, and other remedies were prescribed to restore his strength, which was accomplished in a short time.

Alum is a useful medicine in many cases of hæmorrhages. The celebrated Cullen however improperly rejected it in hæmoptysis, since, the experience of other physicians has been

such, as to rank it high in this disease. It may be given alone, or in combination with Kino. The neatest preparation, however, is in the form of whey, prepared by boiling two drachms of alum in a pint of milk; of this a wine glass full may be given every two or three hours, as the exigency of the case may require. While using this medicine, it will be necessary to keep the bowels gently open; for this purpose purgatives are ill adapted, as they carry off with them the medicine that is employed. Glysters are therefore preferable, and in order that they may be more effectual, they should be of a stimulating nature.

As further means in a critical case, we should resort to cold applications to the thorax, and particularly under the arm pits. As part is more susceptible than the axillæ, and such applications prove very serviceable. The patients room should also be well ventilated, and his drinks moderately cold.

To the remedies already mentioned, may be added another class, very fully

accredited by no small proportion of practition=
=ers. It is the narcotics to which I allude. The
practice of using them on this occasion origi=
=nated in Germany. The principle which
first dictated their use, was to quiet irritation.
No striking advantage, is obtained, from either
the henbane or hemlock. But opium prom=
=ises a great deal in these cases. What
might be the effect of a very large dose of it,
in the very commencement of haemoptysis,
is as yet quite problematical. That it has
done good, when thus prescribed, we are
not with out some direct proof. Nor is the
collateral evidence altogether to be overlooked.
It is now admitted, that one of the most effec=
=tual remedies in certain cases of uterine
haemorrhages, is to put the system completely
under the impressions of an opiate. But
it will be asked, is not opium a stimulant,
and can it be proper to give it, where there is
an active and disturbed circulation. To this it
may be replied, does not every surgeon, after an
operation, to quiet the patient and prevent

haemorrhage, resort to opium, though a very high degree of vascular action may prevail at the time? The fact is, it should be constantly borne in mind, that it possesses peculiar properties. Most unquestionably, opium is a stimulant. But it is also possessed of powers, by which it is enabled to do away irritation. So that it is sometimes very useful even where the general system seems to preclude its employment. In the use of this medicine in haemoptysis, it answers best, where there is great irritation of the pulmonary organs, attended with cough. No one will dispute its propriety under such circumstances.

Digitalis has been spoken of by Dr. Currie of Liverpool as being of great utility in active haemorrhagy. When the energy of the system has been previously reduced by venesection, but still continues so great as to require further depletion, which from the state of the patient could not be affected by blood-letting, then the digitalis may be given with

advantage. But should not be given in the disease under consideration, before venesection has been frequently premised, at the same time it is necessary to apply blisters.

Blisters, are among the most effi= =cacious measures for treating this disease; but they are never to be used until the energy of the arterial system has been previously reduced by bloodletting, and the antiphlogistic regimen. They are serviceable, applied to the wrists, back of the neck and chest, of which the last is the best, but they here should evacuate plentifully, for it is principally with this view they are used. They should therefore be kept open by stimulating applications.

Issues, have a remarkable effect in preventing a recurrence of this disease. They should be made on the upper part of the arm near the insertion of the deltoid muscle, and on the breast.

Emetics, by discharging offensive and irritating matter from the stomach,

and ought to be abstained from.

We now proceed to mention the remedies proper for its second, or passive state. And first, of bark, which will be found a valuable remedy in this stage of the disease. Its various substitutes, as the Cornus florida, Serica, &c. may be used here.

Wine is a very agreable and manageable stimulant, and one that should be employed when this class of medicines is indicated, and when it does not prove unfriendly, to the stomach.

Porter is highly entitled to our notice, as being a liquid which the stomach retains when all others are offensive to it. Of this, we have a convincing proof, in the case of Dr. Smith of Princeton College, mentioned by the late Dr. Rush. He made it his sole drink for several months, without receiving from it the slightest inconvenience.

Acids may be administered with a view to their astringent operation, in combination with some of the remedies above mentioned; here the mineral acids appear preferable, the best however is the Sulphuric.

Much benefit will be derived from a light and cordial diet. The patient here, as in convalescence from other low states of debility, should eat a small quantity at a time, and his meals be often repeated; that an equable excitement may be preserved in the stomach, and the system not suffer from the alternate plenitude and inanition of that Viscus.